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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,359	09/14/2005	Tomoyuki Hosokawa	01165.0945-00000	5444

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EXAMINER

MATZEK, MATTHEW D

ART UNIT	PAPER NUMBER
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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,359	Applicant(s) HOSOKAWA ET AL.	
	Examiner MATTHEW D. MATZEK	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-6 and 8-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6 and 8-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Response to Amendment

1. The amendment dated 10/15/2007 has been fully considered and entered into the Record. The amended claims contain no new matter. Claims 3 and 7 are canceled. Claims 1, 2, 4-6 and 8-17 are currently active. The objection to claims 11-13 has been withdrawn due to amendment.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 2, 4-6 and 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins et al. (US 5,178,931) in view of Bansal et al. (US 6,548,431).

a. Perkins et al. teach the creation of a nonwoven laminate comprising three layers, the first and third layers comprising filaments of diameter in excess of 7 microns and the second layer consists of filaments with average diameters between 0.1 to 10 microns. The layers of the laminate are pattern bonded by the application of thermocompressive bonding (abstract). The first and third layers, which correspond to claimed second layer, may be made of polyester (col. 2, lines 56-63). The second layer may be made of a mixture of polyethylene or polypropylene and polyester (col. 5, lines 47-60). Perkins et al. fail to teach the quantity of each polymer to be used in the second layer.

b. Bansal et al. teach a process for making a nonwoven sheet of melt spun fibers comprising at least 30 weight percent polyester having a viscosity less than 0.62 dl/g (abstract). The preferred viscosity of the polyester ranges from 0.40 to 0.60 dl/g (col. 2, lines 37-48). The polyester may be blended with polyethylene (col. 3, lines 12-20).

Table 1 demonstrates that the invention of Bansal et al. have water pressure resistances

(hydrostatic head) ranging from 3.73-4.12 kPa (conversion done by Examiner). The fibers of the nonwoven sheet are preferably at least 75 weight percent polyester (col. 11, lines 3-5) and at least one other separate polymer component. The polyester and the “at least one other separate polymer component”, polyethylene may be arranged in an “islands in the sea” orientation with the element in greater concentration (polyester) being the “sea” and the polyethylene being the island component. This results in less than 25 weight percent polyethylene in the fibers of the nonwoven sheet. This is the same manufacturing process utilized by Applicant, which would also lead to the claimed discontinuous phase of the polyolefin resin scattered in the surface of the extremely fine fibers forming the extremely fine fibers nonwoven fabric. The meltspun fibers of Bansal et al. are on the same diameter scale as those of Perkins et al. (col. 4, lines 3-9). The basis weights of Bansal et al. exceed those required by the instant claims (Table 1). Adding the Grab Tensile strengths in the Machine and Cross Directions provided in Table 1 and divided this value yields tensile tenacities that exceed those claimed.

c. The new claim limitations recite a discontinuous phase of polyolefin resin scattered in a surface of the extremely fine fibers of the nonwoven fabric. The method of producing extremely fine fibers set forth in Bansal et al. provides for the formation of polyethylene (island portion) mixed with polyester (sea portion) followed by the application of a drawing tension to the fibers that decreases the fiber’s diameter and would necessarily cause the elongation of all components within the fiber in the longitudinal direction (col. 2, lines 13-36). Bansal et al. also disclose that any known configuration may be used for the multi-component fibers and that if a fiber contains

multiple components that the component with the lower melting temperature should be located on the fiber's surface. The example provided by Bansal et al. has exterior polyethylene with an interior of polyester. The combination of the configuration and composition teachings set forth in Bansal would result in the claimed fiber surface structure because the polyethylene component would be present on the fibers surface as the lower melting temperature component and would be in the form of a discontinuous phase in the longitudinal direction due to the "island in sea" configuration and the fiber's post-formation drawing.

d. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have increased the hydrostatic head of the combined invention to at least 5.2 kPa, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. This is especially true in arts where the variable is one routinely optimized and its factors for variance are understood. hydrostatic head is such a variable as evidenced by the various disclosures of record.

e. Since Perkins et al. and Bansal et al. are from the same field of endeavor (i.e. nonwoven fibrous structures), the purpose disclosed by Bansal et al. would have been recognized in the pertinent art of Perkins et al.

f. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the middle layer of Perkins et al. with the invention of Bansal et al. with the motivation of using a nonwoven sheet exhibiting high strength

comprised of low denier fibers melt spun of low viscosity polyester (col. 8, line 66-col. 9, line 5) as disclosed by Bansal et al.

g. The melt flow rates of the polymers used in Perkins et al. and Bansal et al. are not disclosed. However, the viscosities of the polymers of Bansal et al. are taught and anticipate those currently claimed. Melt flow rates and inherent viscosities are closely correlated. Therefore, it would be reasonable to presume that the melt flow rates (MFRs) of Bansal et al. either anticipate those currently claimed or it would have been obvious to optimize the MFRs of Bansal et al. to arrive at those instantly claimed motivated by the desire to use a more easily processed polymer.

Response to Arguments

3. Applicant's arguments filed 10/15/2007 have been fully considered but they are not persuasive.

4. Applicant argues that Perkins offers no description or suggestion regarding a hydrophobic polyolefin resin distributed as a discontinuous phase, in a longitudinal direction, in a fiber surface of extremely fine polyester fibers forming an extremely fine fiber nonwoven fabric layer. Examiner has only relied upon Perkins for an extremely fine fiber nonwoven fabric layer comprising a mixture of polyolefin and polyester resins. Bansal et al. has been relied upon to provide the claimed composition and structure of the extremely fine fibers.

5. Applicant argues that Bansal et al. fail to teach or suggest a hydrophobic polyolefin resin distributed as a discontinuous phase, in a longitudinal direction, in a fiber surface of extremely fine polyester fibers forming an extremely fine fiber nonwoven fabric layer. The method of producing extremely fine fibers set forth in Bansal et al. provides for the formation of

Art Unit: 1794

polyethylene (island portion) mixed with polyester (sea portion) followed by the application of a drawing tension to the fibers that decreases the fiber's diameter and would necessarily cause the elongation of all components within the fiber in the longitudinal direction (col. 2, lines 13-36).

Bansal et al. also disclose that any known configuration may be used for the multi-component fibers and that if a fiber contains multiple components that the component with the lower melting temperature should be located on the fiber's surface. The example provided by Bansal et al. has exterior polyethylene with an interior of polyester. The combination of the configuration and composition teachings set forth in Bansal would result in the claimed fiber surface structure because the polyethylene component would be present on the fibers surface as the lower melting temperature component and would be in the form of a discontinuous phase in the longitudinal direction due to the "island in sea" configuration and the fiber's post-formation drawing.

6. Examiner has considered the US patent provided by Applicant and understands that sometimes the "islands in the sea" configuration is used to form very fine fibers by dissolving the "sea" component, but directs Applicant to review Bansal et al. in which the entire fiber remains intact in the final product and clearly teaches the purpose of each phase within the multi-component fiber.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 1794

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/Terrel Morris/
Terrel Morris
Supervisory Patent Examiner
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